

REMARKS

Summary

This Amendment is responsive to the Office Action mailed on September 7, 2004. Claims 1 and 89 are amended herein. Claims 27-87 have been withdrawn from consideration in response to an election requirement. Claims 1-89 are pending.

Claims 1 and 89 are rejected under 35 U.S.C. § 112, first paragraph, as failing to provide enablement for the claim language "the software interface enables compatibility between the core system software and different middleware.

Claims 1, 2, 16, 88, and 89 stand rejected under 35 U.S.C. § 102(b) as being unpatentable over Applicant Admitted Prior Art (APA) in view of Evain, "*The Multimedia Home Platform*" EBU Technical Review, Spring 1998, pages 4-10 (Evain).

Claims 3-15 and 17-26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over APA in view of Evain, in further view of Sambar, "*PowerTV Operating System*" Release 1.5, October 1998, pages 1-52 (Sambar).

Applicants respectfully traverse these rejections in view of the amended claims and the following comments.

Discussion of Amended Claims

The language of claims 1 and 89 is rearranged to clarify that the software interface is an interface between (a) middleware and (b) the core system software and cable settop hardware. In other words, the interface of the present invention extracts the core system software and the hardware for use with different versions of middleware.

This provides compatibility of the core system software and hardware with middleware from different middleware vendors such that different middleware can be used on the same settop box. For example, interface 26 of Figure 1 enables different versions of middleware 12 to work with the core system software 20 and, as a result, the cable settop hardware 34. Accordingly, television functions which are part of the core system software 20 can be accessed regardless of the type of middleware used, and implemented on the cable settop hardware 34.

Discussion of Objection Under 35 U.S.C. § 112

The Examiner has rejected claims 1 and 89 under 35 U.S.C. § 112, first paragraph, as the Examiner asserts that the specification does not provide enablement for the language of claims 1 and 89 which specifies: "the software interface enables compatibility between the core system software and different middleware."

Applicants respectfully submit that the present invention is directed towards such a software interface which provides compatibility between core system software and different middleware. This is apparent from the various advantages provided by the present invention, examples of which are provided at page 2, line 32 through page 4, line 8). Further, the majority of the specification is directed towards describing such a software interface.

Applicants respectfully submit that the manner in which the interface is implemented is immaterial to the present invention. It is the functionality provided by the interface which comprises the invention. As indicated on page 15, line 33 through page 16, line 2, the invention can

be implemented using known techniques which would be apparent to those skilled in the art given Applicants' disclosure.

In particular, the software interface of the present invention is shown and described in connection with Figure 1 as software interface 26. Software interface 26 is positioned between the middleware 12 and the core system software 20. The software interface 26 defines the services provided to application operating systems and middleware solution providers from the core settop system software 20. The particular functions provided by this software interface 26 (functions 1.1 through 14.6) are described on pages 16-49 of Applicants' application. Given the functions to be provided by the interface 26, along with the disclosure of Figure 1, one skilled in the art would be able to implement the present invention.

Accordingly, Applicants respectfully submit that the language of claims 1 and 89 at issue is fully supported and enabled by the specification.

Discussion of Cited Prior Art

The Applicant Admitted Prior Art (APA) relied on by the Examiner, which includes page 1, line 27 through page 2, line 23 of Applicants' specification, does not disclose an interface between middleware and core system software, as claimed by Applicants. This prior art mentioned in Applicants' specification describes common prior art user terminals, such as a digital set-top box, which typically includes an operating system layer, a middleware layer, and drivers, as described on page 1, lines 28-29. This portion of the APA relied on by the Examiner does not disclose a

separate interface between the middleware and the core system software. Page two of the application indicates that the middleware of the prior art terminal is described as connecting and managing different applications. A portion of the APA not relied on by the Examiner, page 2, lines 24-31 indicates that such prior art set tops are only designed to use one particular operating system, and that the problem of handling multiple operating systems has not been previously addressed in these set tops. In the prior art, applications have been ported to various operating system environments through rewrite of the set top system software to that environment or through an abstraction layer.

There is no discussion in the APA regarding a separate interface which provides compatibility between the middleware on the one hand and the core system software and hardware on the other hand, as in the APA the issue of compatibility of different operating systems with different middleware was addressed via a rewrite of the operating system software.

Further, Applicant respectfully submits that Evain is an example of the APA mentioned on pages 1-2 of Applicants' specification.

The Examiner indicates that "Evain teaches enabling compatibility between the core system software and different middleware (page 7, third column, lines 25-36 and page 8, first column, lines 25-44)." (Office Action, page 4). Applicants respectfully submit that the Examiner's interpretation of Evain is in error. The portion of Evain relied on by the Examiner describes an Application program Interface (API) which provides compatibility between the

core system software and different applications (not middleware as apparently assumed by the Examiner).

In particular, Evain discloses an API for use in connection with Multimedia Home Platform (MHP), which is a common platform for user-transparent access to multimedia services (Evain, Introduction). The API disclosed in Evain is an interface between application programs and system software of a multimedia terminal, which provides platform independence for application program software (Evain, page 7-8 "Definition of the API").

The Examiner has mistakenly confused the API of Evain, which is between different applications and the core system software, with the software interface of Applicants' claimed invention, which is between different middleware and the core system software and cable settop hardware.

Applicant's claimed invention is directed towards a software interface between (a) middleware and (b) the core system software and cable settop hardware of the terminal. The middleware of Applicants' claimed invention mediates between an application program and the core system software and the system hardware. Applicants' software interface enables compatibility between: (1) the core system software and cable settop hardware; and (2) different middleware. Therefore, the claimed interface enables an application program to access a function of the terminal provided by the core system software/hardware via said middleware (regardless of what version of middleware is being run at the terminal).

While the API of Evain may be seen as being equivalent to the middleware of Applicants' claimed invention, Evain does not provide an additional interface between this API

(middleware) and the core system software and hardware as claimed by Applicants.

Simply put, the software interface of the present invention is an additional layer of software provided between the middleware layer (API of Evain) and the core system software layer. This interface enables different versions of middleware to operate with the core system software and the settop hardware. Thus, Applicants' claims 1 and 89 describe four layers of software, in layer order as follows:

- (1) application program software;
- (2) middleware;
- (3) the inventive software interface; and
- (4) the core system software.

In contrast, Figure 2 of Evain describes only three of Applicants' claimed four layers of software ordered as follows:

- (1) Interoperable applications (application program software);
- (2) API (middleware); and
- (3) System software (core system software).

As can be seen from Figure 2 of Evain, the application programs (Interoperable applications 1, 2, ...) are at the top level of the software stack with the API (middleware) between the applications and the core system software, which is at the bottom of the software stack. There is no additional interface shown in Figure 2 of Evain between the API level and the system software level.

Evain simply does not disclose or remotely suggest an additional software interface between the API (middleware) and the system software as claimed by Applicants. As can be seen from Applicant's Figure 1, Applicants' claimed software interface (e.g., software interface 26) is a level below the middleware (API of Evain) in the terminal structure.

Neither the APA nor Evain disclose or remotely suggest an additional software interface that provides compatibility between: (1) the core system software and cable settop hardware; and (2) different middleware, as claimed by Applicants. Accordingly, Applicants respectfully submit that the present invention is not anticipated by and would not have been obvious in view of Evain, taken alone or in combination with Sambar or any of the other prior art of record.

Further remarks regarding the asserted relationship between Applicants' claims and the prior art are not deemed necessary, in view of the amended claims and the foregoing discussion. Applicants' silence as to any of the Examiner's comments is not indicative of an acquiescence to the stated grounds of rejection.

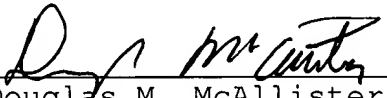
Withdrawal of the rejections under 35 U.S.C. § 103(a) is therefore respectfully requested.

Conclusion

The Examiner is respectfully requested to reconsider this application, allow each of the pending claims and to pass this application on to an early issue. If there are any remaining issues that need to be addressed in order to

place this application into condition for allowance, the Examiner is requested to telephone Applicants' undersigned attorney.

Respectfully submitted,



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